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☞See Advertisement on last page.

POETRY.

THE LITTLE MOLES.

BY CHARLES MACKAY.

When grasping tyrranny offends
Or angry bigots frown;
When rulers plot for selfish ends,
To keep the people down:
When statesmen form unholy league
To drive the world to war;
When knaves in palaces intrigue
For ribbons or a star:
We raise our heads, survey their deeds
And cheerily reply—
Grub, little moles, grub under ground;
There's sunshine in the sky.

When canting hypocrites combine
To curb a free man's thought,
And hold all doctrine undivine
That holds their canting nought;
When round their narrow pale they plod,
And scornfully assume
That all without are cursed of God,
And justify the doom;
We think of Heaven's eternal love,
And strong in hope reply—
Grub, little moles, grub under ground;
There's sunshine in the sky.

When greedy authors wield the pen
To please the vulgar town—
Depict great thieves as injured men
And heroes of renown;
Pander to prejudice unclean,
Apologise for crime,
And daub the vices of the mean
With flattery like slime;
For Milton's craft, for Shakspeare's tongue,
We blush, but yet reply—
Grub, little moles, grub under ground;
There's sunshine in the sky.

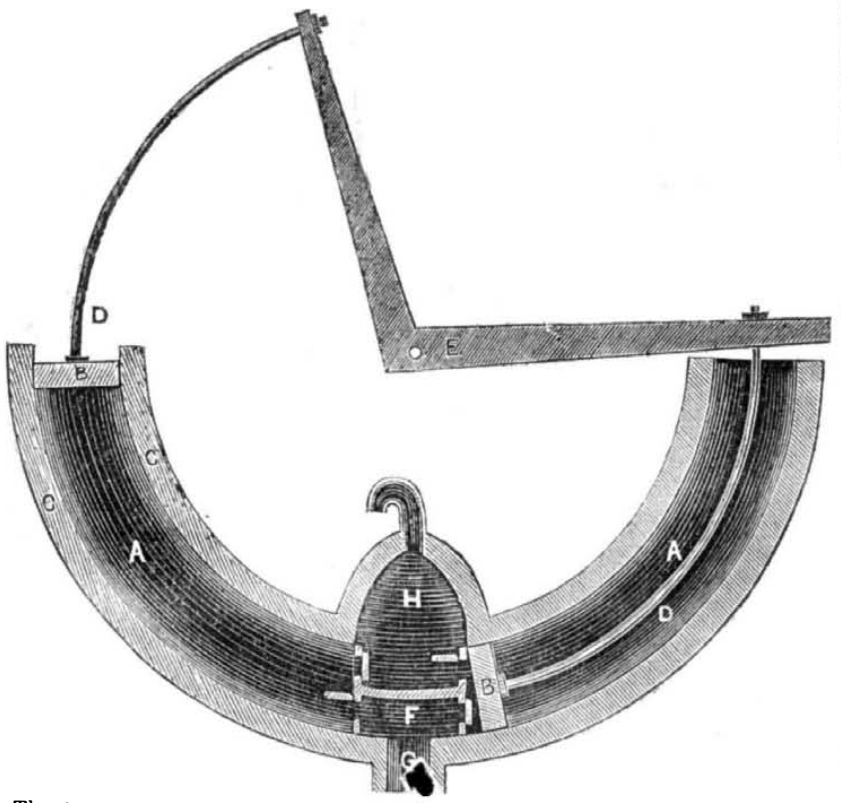
When snug philosophers survey
The various climes of earth,
And mourn—poor sagelings of a day—
Its too prolific birth;
And prove by figure, rule and plan
The large fair world too small
To feed the multitudes of man
That flourish on its ball,
We view the vineyards on the hills,
And cornfields waving high—
Grub, little moles, grub under ground;
There's sunshine in the sky.

When men complain of human kind,
In misanthropic mood,
And thinking evil things, grow blind
To presence of the good;
When, walled in prejudices strong,
They urge that evermore
The world is fated to go wrong,
For going wrong before:
We feel the truths they cannot feel,
And smile as we reply—
Grub, little moles, grub under ground:
There's sunshine in the sky.

Painting to the Life.

The Philadelphia Galaxy says, an artist in that city, painted a cow and cabbage so *natural* that he was obliged to separate them before he had finished, because the cow commenced eating the cabbage.

AVERY'S SEMI-CIRCULAR PUMP.



The above engraving is a representation of a pump constructed by Ira Avery, Tuckahannock, Mass., and from its form, the great power exercised to the small space occupied, is self-apparent. A A, are circular openings for the pistons B B, to work in. C C, are the circular pieces which compose the upper and under sides of the pump and which are fastened between the plates which form the flat sides of the pump. D D, are piston rods, made fast to lever E. F, is the water chamber into which the water is drawn, through the pipe G. H, is the upper water chamber into which the water is forced by the downward motion of each piston and out at the crooked pipe at the top, The valves are seen but not lettered. The one Mr. Avery has made is about 5 inches from the fulcrum of the lever to the piston rod, and works with ease and gives a powerful stream. Mr. A. thinks it will work so as to make an efficient fire engine.—The dimensions of the machine which is of wood, are only about 9 inches from the fulcrum to the bottom; 16 inches long and about 4 inches thick. If made of iron or other metal and will occupy but little more room than a coffee mill. The openings or cylinders may be made round so as to have round pistons instead of square

A Lesson for Scolding Wives.

"And I dare say you have scolded your wife very often, Newman," said I once.

Old Newman looked down, and his wife looked up to reply—

"Never to signify—and if he has, I deserve it!"

"And I dare say, if the truth were told, you have scolded him quite as often."

"Nay," said the old woman, with a beauty of kindness which all the poetry in the world cannot excel "How can a wife scold her good man, who has been working for her and her little ones all the day? It may do for a man to be pevish, for it is he who bears the crosses of the world, but who should make him forget them but his own wife? And she had best for her own sake, for nobody can scold much when the scolding is all on one side."

A Patent Boot Jack.

A countryman who had slept all night in the Battery Park, awoke and found himself stripped of his coat and boots—he had drank too freely; where he laid down he could not tell, but found himself in the situation he then was. "Plague on't," he said, "I can imagine how they got the hat and coat, but as to the boots, they fitted so tight, they must have used a *patent boot jack* to pull 'em off."

Consolation.

A soldier, who was wounded in battle set up a terrible bellowing. An Irishman, who laid somewhere near him, with legs shot off, immediately sung out—"Bad luck to the likes of ye, do ye think that nobody else is kilt but yourself?"

Stiff Knee and Stiff Neck.

A right reverend prelate, himself a man of extreme good nature, was frequently much vexed in the spirit, by the proud, forward, perverse, and untractable temper of his vicar.

The latter, after an absence much longer than usual, one day paid a visit to the bishop, who kindly enquired the cause of his absence, and was answered by the vicar, that he had been confined to his house for some time past by an obstinate *stiffness* in his *knee*. "I am glad of that replied the prelate, "'tis a good symptom that the order has changed place, for I had a long time thought it *immoveably settled* in your neck."

An Amusing Incident.

During our last conflict with Great Britain, a number of our troops were engaged in repairing the shattered fortifications at Niagara, and while so engaged, the enemy commenced a pretty sharp fire, so that it occupied nearly all the time of our forces to keep on the lookout for the shots of the enemy. Finding they did not make much headway, they stationed a son of the Emerald Isle to give warning whenever a shot or shell was coming, that they might be prepared for it. This the sentinel faithfully performed, alternately singing out, "shot," "shell," "shell,""shot," until finally the enemy started a congreve rocket, which Pat had never seen before He hesitated a moment, and seeing it elevate, he shouted, "shot"—"by Japers, the *gun* with it?"

A Query.

"Why don't they bring the whole of China here at once," said Mrs. Partington, "instead of bringing it here in *junks*."

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 31st, 1847.

To Arthur Parsey, of Leicester Square, England, for improvement in Condensed Air Engines. Patented July 31, 1847.

To E. H. & C. J. Merrill, of Akron, Ohio, for improvement in making Bottles, &c. of Clay. Patented July 31, 1847.

To Ezekiel Potter, of Tredyffin township, Chester Co. Pa., for improvement in machines for cutting and grinding Corn Stalks. Patented July 31, 1847.

To John H. Better, of New York, for improvement in machinery for sawing Arabesque Chair Backs. Patented July 31, 1847.

To Leman C. Miner, of Saugerties, N. Y., for improvement in Tuyers. Patented July 31.

To Benjamin F. Coston, of Washington, D. C., for improvement in apparatus for the manufacture of Gas. Patented July 26, 1847.

To Oliver Reynolds, of Webster, New York, for improvement in Bee Hives. Patented July 31, 1847.

To Richard M. Hoe, of New York, for improvement in Inking apparatus for Printing Presses. Patented July 31, 1847.

To Jacob Seabury, of New York, for improvement in Boiler Feeders, (having assigned his right to Daniel Griffin, of New York.)—Patented July 31, 1847.

RE-ISSUES.

To Samuel Pierce, of Troy, New York, for improvement in Cooking Stove. Patented Dec. 6, 1845. Re-issued April 24, 1847. Re-issued July 31, 1847, (having assigned his right to Johnson & Cox.)

INVENTORS' CLAIMS.

Rotary Steam Engine.

Invented by Philo C. Curtis, of Utica, N. Y. Patented 10th July, 1847. No. 5190.—What he claims as his invention and secures by letters patent, is the constructing a rotary engine of one, two or more cylinders, crossing and being united to each other at their centres as also to a solid and hollow axle on which they are suspended and revolve, by means of heavy pistons placed within the cylinders and shifted from end to end by steam admitted to the same through the lower compartment of a tube and escaping through the upper compartment of the same through the medium of side pipes connecting the ends of the cylinders with a hollow axle, and alternately becoming steam and escape pipes.

Printing Press.

Invented by Richard M. Hoe, of New York. Patented 10th July, 1847. No. 5188. What he claims as his invention and secures by letters patent, is, first giving to the inking roller frame, for inking the forms of types, its motions independent of the motions of the frisket frame, whereby the range of the motion to be given to them can be reduced, more time can be given to the rollers to receive their supply of ink, and the rollers can be carried over the form of types, once, twice, or more times for each impression. Secondly, he claims the method of removing the printed sheet from the frisket by passing a part of the frisket between rollers that remove the sheet and deliver it to the fly frame or other apparatus for delivering the printed sheets. Thirdly, he clrims the arrangement of the finger bars in combination with the incline planes into which the ends of the forward bar pass, and the lever which acts as an incline plane to open the fingers, and then rise to suffer the tension of the spring to close them. Fourth, he claims the arrangement of either of the cams that operate the inking roller frame, the cogged sector, and the train of wheels, in combination with the inking roller frame. And fifth, he claims the arrangement of the cam, the sector and train of wheels, in combination with the frisket and finger frame, as described.

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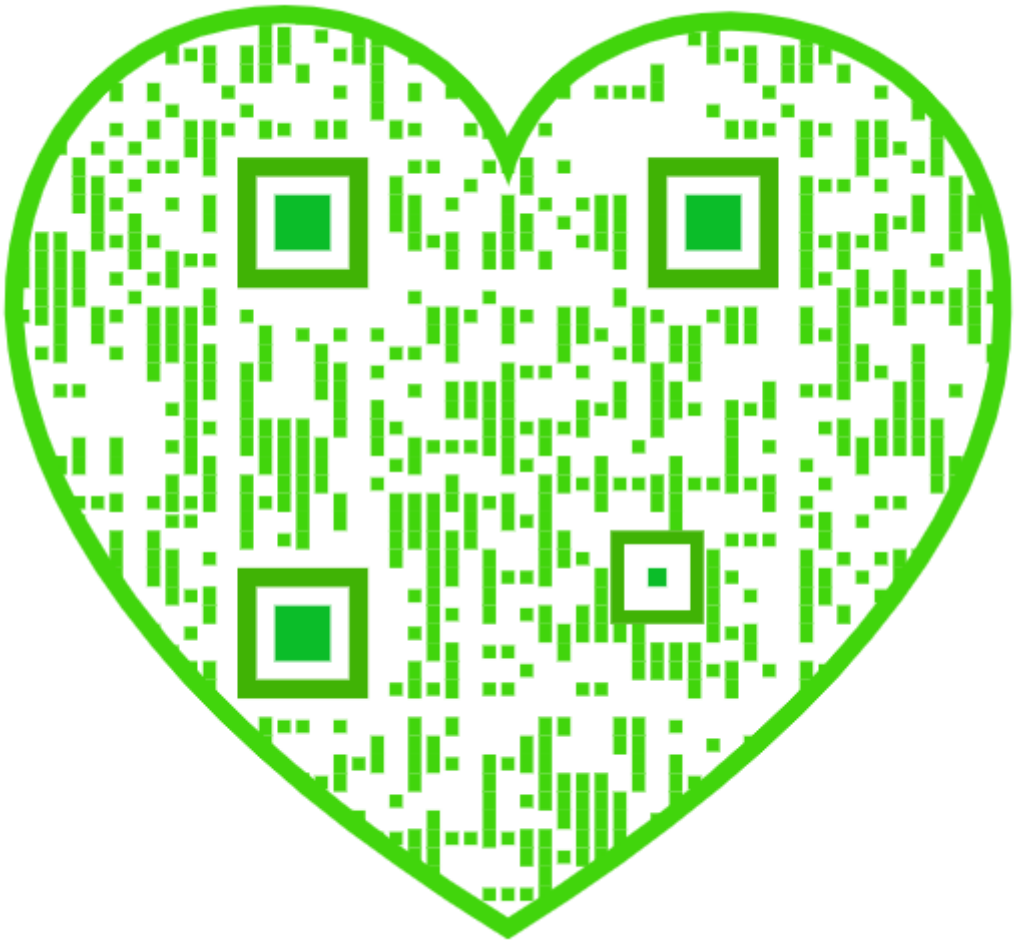

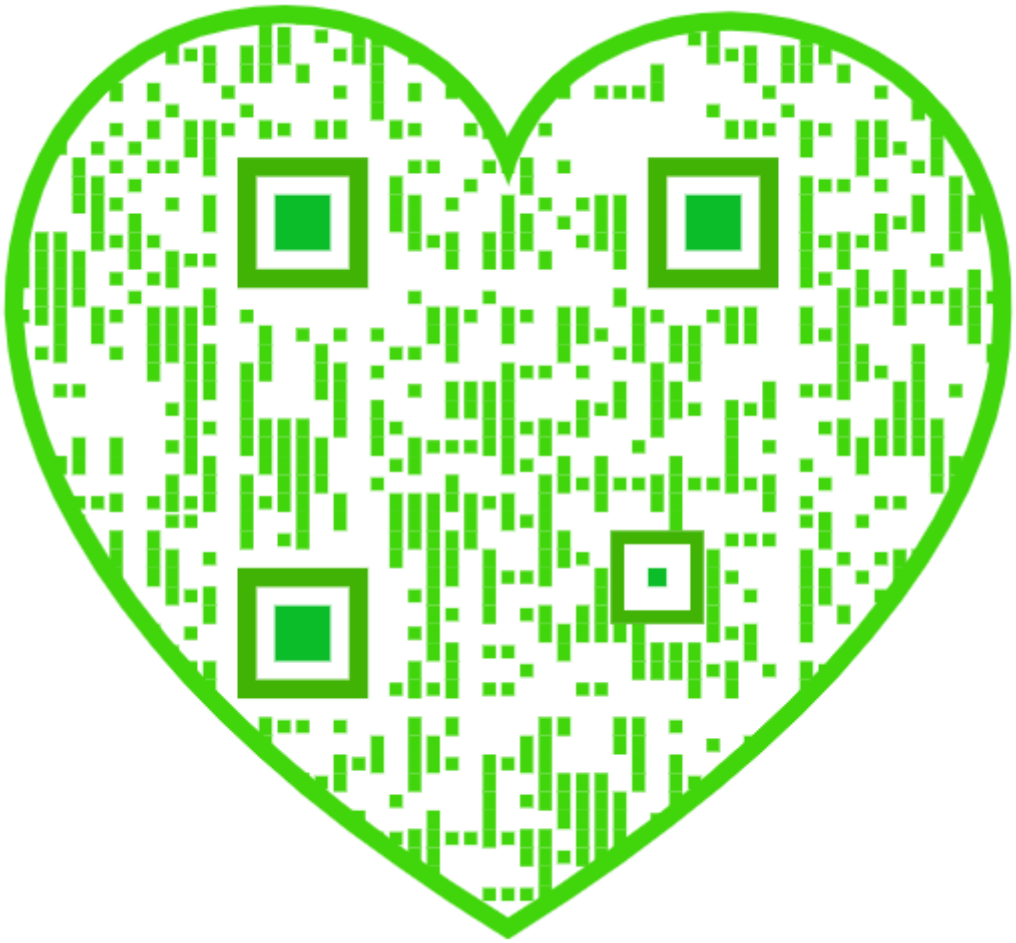

Sulphuric Acid in Agriculture.

Sulphuric Acid, invaluable for many purposes, is coming into common use among the English farmers. Some buy whole cartloads of it. The old price was eight cents per pound, but it now can be had in Liverpool for three—platinum receivers, though they cost $5,000, effecting a great saving, when substituted for glass in the manufacture. The production of Crops remove the phosphate of lime from the soil—bones dissolved in sulphuric acid produce the phosphate, and the phosphoric acid so produced has been brought to bear upon the land with the most beneficial effects. Professor Liebig gives it as his opinion, that the commercial prosperity of a country may be estimated by the quantities of sulphuric acid it consumes.

Niagara Falls.

There is now at the Falls a small Steam Boat called the Maid of the Mist, that runs three times a day from the Rapids, a mile below the Cataract, up that wild, fierce, whirling current, to and along the base of the mighty column which rushes from the summit "down below."

You are taken in carriages nearly two miles to the steamer. The road down the bank starts from the point on the American side which has been fixed upon for a terminus to the Suspension Bridge. As the "Rapids" and "Whirlpool," in the former of which a boat would be torn to pieces preparatory to being swallowed up by the latter, are just below the 'Maid's' wharf, this voyage has a nervous look. But the precautions and guards against accident are so well and carefully provided as to inspire full confidence.—Without this excursion upon the "Maid of the Mist," a view of the Falls of Niagara is incomplete.

A Great Tree.

There is a willow tree in the door yard of Mr. Samuel Reed of Woolwich, which, seventy years ago, Was the riding stick of the Rev. Mr. Winchell, (our readers are aware that a willow stick driven into the wet ground will take root and grow,) but which now measures at the ground 19 feet in circumference. About 6 feet from the ground it divides into four branches, the two smallest of which measures 7 feet in circumference; the others measure 8 and 8 1-2 feet. The height of the tree is 60 feet; its branches cover a circle of 95 feet diameter. Good judges estimate that the whole tree contains seven cords of wood.

Old Snuff Box.

The Editor of the New Haven Journal says:—"We have in our possession a Snuff Box which was brought to this country by one of our Puritanic ancestors in the original ship the Mayflower. It is made of steel, japanned, of a circular form, and is as well preserved for use as the most modern articles of the present day It is the property of an old lady in Fairfield County, and now nearly ninety years of age, of the name of Comstock, and has descended in the family, through all its generations, from the landing at Plymouth of its first possessor. The old lady has several other relics, of the same description, and among them an iron pot which has been in use more than two hundred years.

Extensiveness of the Perspiratory System.

There are 2800 pores in a square inch, and 2500 square inches of surface in a man of ordinary height, therefore the number of pores are seven millions.

The Menai Bridge.

The London Mining Journal states that a series of experiments made by Mr. Motley, C. E. have thrown doubts upon the safety of Stephenson's bridge across the Menai.

Rothchild's Taxes.

The Rothchilds pay taxes on one-hundred and seventy-five millions of dollars.

What is John Jacob Astor's fortune to that of the Jew.

Mechanics Tee-Total Voyagers.

The party of royal sappers, and miners who are to form the "searching" party to be despatched on a boat expedition in search of Sir John Franklin and his party, consists of one coporal, two lance corporals and twelve privates, who have all been examined by Sir John Richardson, and have been selected from Woolwich, Chatham and Sandhurst, out of a large number who volunteered for the expedition. The instructions of the party are to land at Fort Jack and proceed to the company's station on the McKenzie river, where they are to winter, and in the event of an unfortunate doubt still hanging over the fate of the intrepid Arctic voyagers they will be joined by Sir John Richardson in the spring of 1848. The men are all to be teetotalers, that is—no grog or spirits will be served out to them, but they will receive double pay and rations and will have abundant supply of pemmican or the dried flesh of the Buffalo. Winter dresses, prepared from the skin of the moose-deer are also provided for them, and every provision has been made to enable them to meet the rigors of the terrible climate they will have to endure. The men are all accustomed to the use of the boats, which they will have in continual use on the McKenzie, and have been selected from the trades of carpenters, smiths, &c. Dr. King has addressed a letter to the Secretary of State for the Colonies volunteering to go out for the relief of Sir John Franklin's exploring party. He was the medical officer of an expedition in search of Sir John Ross in 1833—34, and for some time commanded that expedition.

Donation to the Washington Monument.

A Scotchman by the name of Morgan a machinist died recently and on some conditions left all his property to the building of the Washington Monument. In reference to this, the Brooklyn *Advertiser* says of Mr Morgan, that for some years past he had given way to habits of intemperance which so impaired his faculties and health that the services of an attendant and nurse were rendered essential, and these were furnished in the person of a faithful and affectionate niece, who for a long period devoted her services to his welfare. In the will which he made shortly prior to his demise, he gave that which will constitute the greater part, if not the whole of his property, for the purpose of the Monument, and left her utterly destitute and penniless who had treated him with assiduous kindness and attention.

There would be no blesssing in such money if devoted to build a monument.

Skeleton of the Regiment.

During the American war, whilst Col. Burgoyne commanded in Cork, he saw a corpulent soldier among the spectators on parade, whom he addressed as follows: "Who are you Sir? you must be drilled twice a day to bring down your *corporation*. Who are you sir?" "Please your honor," replied the soldier, "I am, sir, the *skeleton* of the fifth regiment of foot, which has just marched over from America." The fact, was so, for such was the carnage of the disastrous war, that only this fat soldier and Capt Webb returned to Europe, out of the full regiment that landed in America.

Value of Newspapers.

The Philadelphia U. S. Gazette recently sold for $45,000, one half of the Boston Atlas has been purchased at a cost of $35,000 the Boston Daily Advertiser is valued at $90,000—$40,000 has been refused for one half of it; one third of the New York Courier was sold a few months since for $38,000, and one quarter of the N. Y. Tribune for $25,000, and we presume that a share in the New York Sun could not be purchased at any price.

Silver by the Ton.

One ton of silver bullion was stored in a St. Louis warehouse, last Monday. It belongs to Santa Fe trades, and is on its way to Philadelphia, to be converted into legal currency.

Jack Frost made his appearance at Keene, N. H. on Thursday morning last. The week previous the thermometer ranged at about 100.

Balloon Explosion.

A balloon lately ascended from Vauxhall Garden, London, in which was Mr Coxwell Editor of the Erostatic Magazine, who gives the following thrilling description of the adventure. After rising from the gardens with an ascending power calculated to assure a clear start, and to give full effect to the fireworks, which were suspended by means of a line from the hoop, the balloon took a course at first across the river in the direction of the New Houses of Parliament. A few seconds had scarcely elapsed, before the first whiz and flash indicated the combustion of the pyrotechnics. . . . . For an hour and a half before we started the lightning was incessant, which elicited from our friends and several of our speculators apprehension for our safety, and no sooner had the fireworks been discharged than a vivid flash occurred, and for the moment it appeared as if the heavens were on fire, and that our destruction was certain. The appearance of the regions above was awfully grand. The expansion that succeeded was immense, and we were all convinced that the gas was escaping from the neck. Mr. Gypson immediately took the valve line, with a view of relieving the upper part of the balloon That operation was unfortunately delayed a few seconds too long, for, notwithstanding that the lower valve was fully open, the silk sustained a fracture, which occasioned us to drop, and hang a considerable distance under the balloon. The responsible, and indeed critical position I filled provoked the charge of my having done something that was uncalled for, and in consequence of its being groundless I state thus much. In an instant the ballast was discharged, and the line connecting the lower valve to the hoop immededately cut. The silk then formed, as it were, into a spacious and perfect parachute, and we descended with gyrations indicative of rapidity and also danger Presently myriads of the gas-lights, which shone so brilliantly but a moment before, appeared to be a rising to us, and instantly the car and the ground came into fearful collision. The spot where we descended was close to some unfinished houses and building materials on the Belgrave road, Pimlico, about a mile from the gardens Our course having been semi-circular, providentially we all escaped without injury, and the balloon is but slightly damaged. I have no hesitation in stating that the accident was entirely attributable to the state of the atmosphere influenced by the lightning.

Syracuse and Oswego Rail Road.

The directors of the Syracuse and Oswego railroad have decided on a route, and advertised for proposals. The road will pass from Oswego, through Granby (Oswego county)—leaving the village of Fulton about one half-mile to the east—to Lysander, in Onondago county, touching at the village of Baldwinsville; thence up on the west side of Onondago Lake, crossing the canal at Geddes, (near the lock,) and connecting with either the Syracuse and Auburn, or the Syracuse and Utica Railroad, as may hereafter be agreed upon The route selected is represented as an excellent and cheap one. Its length will be thirty-five miles, or an excess of only two miles over an air line between Syracuse and Oswego. One-half the distance is nearly level, and no grade will exceed twenty feet to the mile The track will be laid with a T rail (of about 60 pounds to the yard,) and the whole road built in the most approved and substantial manner.

Parisian Carpenters.

The Carpenter's Trade Union turned out on the 30th June. with the long canes and flowing ribbon badges of their corporation, headed by the Hosters of the fraternity. They were upwards of 500 strong, and marched to the residence of Mr. Berryer, to present him with a carved wooden testimonial of their gratitude for his services in defending some of their number tried for conspiracy during the last strike.

State Papers.

We are indebted to the Hon. Secretary of State, James Buchanan, for important documents relative to foreign trade and commerce. We shall be able to notice them at some future period.

LATE FROM EUROPE.

Since our last, three steamers have arrived from Europe, the Washington, Hibernia and Philadelphia. The Boston and Liverpool line of steamers seem to beat all others yet, by three and four days passage.

Nothing of great importance had occurred. The crops throughout Europe looked well and prices of all provision had fell still lower in England.

Lord Palmerston had made a strange speech in relation to American indebtedness to England. He used very threatening language.

M. Teste, Gen. Cabieres, and Mr. Tellapra of the French Ministry, have lately been detected in a most extensive course of government fraud. M. Teste when thrown into prison endeavored to put an end to his life by shooting himself through the body. But a strange philosophical result prevented his death for some important purpose undoubtedly. He held the muzzle of the pistol so close to his body that the air in the barrel offered such an elastic resistence to the bullet when discharged, that it only made a slight contusion on his skin and then rolled on the prison floor.

The King of Belgium wishes to abdicate. Uneasy is the head that wears a crown. There was an old Scotch elder who used to pray every night "Lord ne'er mak me a King." He must have been a Republican.

The young Queen of Spain and her husband are still pouting at one another. Who would be a monarch to have all the world babbling about family affairs. Give us a little farm well tilled, a little wife well willed, and a little barn well filled and we would not give a snuff to call a King our cousin.

Bursting of a Forge Cinder.

A singular and sad accident happened at Wilksborough, last week, occasioned by the bursting of a mass of cinder in a forge, owned by the Messrs. Kingslands, burning three young men in such a manner as to leave but a small chance for their recovery. Those injured were S. Whitcomb, son of Mr. John Whitcomb, Keesville, John Foster, and a lad named Haymer. They were standing near the cinder when it exploded.

The Keesville Republican of the 19th inst. says: 'The explosion was occasioned by throwing a quantity of water upon the cinder as it ran from the fire, which, becoming enclosed within the shell formed by the cinder as it cooled, the steam thus generated exploded the mass with tremendous force. One man was thrown nearly thirty feet, doing him slight injury; the fore plate of the fire, weighing some 250 pounds, was blown through the roof, tearing away the rafters and plank for 10 square feet.'

The report of the explosion was heard at a distance of six miles.

Explosion.

Ths Steamer Niagara, Capt. Kellog, burst her steam chimney on Saturday morning, opposite Tarrytown, doing no other damage to the boat. Three or four of the passengers were slightly, and two severely scalded, two of the hands are missing, supposed to have jumped or been blown overboard. About 150 passengers were on board, who were transferred to the Roger Williams, and the Niagara anchored at Tarrytown to repair.

Phrenological Journal.

No. 8, of vol. 9, for August, of the Phrenological Journal, is issued. It contains a phrenological description of Alexander Campbell, of Ohio, the celebrated controversialist. There is an engraving of the Professor, and he looks as keen as if he was snapping up Robert Owen in the famous debate which took place in Cincinnati.

It is stated that the forests of Assam in British India, are capable of producing India Rubber sufficient to supply the demands of the civilized world, and that it has already become an extensive article of export from that province.

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FOUR GRAVES.

Beside a cheerful, winter fire,
Three children drew their little chairs,
And laughed and talked with guileless tongues,
Of toys, and sports, and childish cares.

Their mother with an aspect meek,
Was smiling at their taintless joy,
While frequent from her knee she raised
And kissed her beauteous infant boy.

But oh! that hearth—the fated shrine!
That idol of her full heart's all,
There sorrow fixed her sable throne,
And gloom o'erspread it like a pall!

Death came with secret, silent tread,
And touched them in the vernal hours;
And one by one their pulses ceased,
They withered like the gentle flowers!

Meekly the mother bowed her head,
While from her eyes the tear drops came,
"The Lord did give, and take away,
And blessed be His Holy name."

Beneath the village church-yard turf,
Four little graves are side by side;
And one large slab, that covers all,
Tells who they are and how they died!

A Peruvian Paradise.

The favorite residence of the Incas was at Yucay, about four leagues distance from the capital. In this delicious valley, locked up within the friendly arms of the Sierra, which sheltered it from the rude breezes of the east, and refreshed by gushing fountains and streams of running water, they built the most beautiful of their palaces. Here, when wearied with the dust and toil of the city, they loved to retreat, and solace themselves with the society of their friends and favorites—wandering amidst groves and airy gardens, that shed around the soft intoxicating odors, and lulled the senses to voluptous repose. Here, too, they loved to indulge in the luxury of their baths, replenished by streams of crystal water, which were conducted through subterraneous silver channels into basins of gold. The spacious gardens were stocked with numerous varieties of plants and flowers, that grew without effort in this temperate region of the tropics; while parterres of more extraordinary kind were planted by their side, glowing with the various forms of vegetable life, skilfully imitated in gold und silver. Among them, the Indian corn—the most beautiful of American grains—is particularly commemorated; and the curious workmanship is noticed with which the golden ear was half disclosed amidst the broad leaves of silver, and the light tassels of the same material, that floated gracefully from the top. If this dazzling picture staggers the faith of the reader, he may reflect that the Peruvian mountains teemed with gold; that the natives understood the art of working the mines to a considerable extent; that none of the ore, as we shall see hereafter, was converted into coin, and that the whole of it passed into the hands of the sovereign, for his own exclusive benefit, whether for purposes of utility or ornament. Certain it is that no fact is better attested by the cononerers themselves, who had ample means of information, and no motive for mistatement The Italian poets, in their gorgeous pictures of the gardens of Alcini and Morgana, came nearer to the truth than they imagined.

An Editor's Apology.

An Alabama Editor having been able to raise a piece of muslin, a real jubilee is held in the family on which he takes occasion to give us a touch of his humor and wit for the lack of 'Editorials" by saying: Sal, his better half, has the *scissors*. 'The babies,' he adds, 'must have shirts and Sal won't cut out shirts with a handsaw, no how.'

A New Railroad.

A new Railroad is contemplated to be laid down in a direct line between the thriving village of Westchester and Philadelphia. There is at present a railroad from the village intersecting the Philadelphia and Colunbia Railroad, but the convenience of the public would seem to require a shorter and more direct route.

Improved Barometer.

Having received a number of communications relative to Barometers and other mechanical and scientific inventions and patents granted for the same, we publish as requested, such information as we consider valuable to our readers and correspondents. An improved Barometer was patented last year, which appears to be of some importance. It consists simply of a cup with a disk placed over it, air tight, and the air is exhausted from the interior. The disk, which is of sheet metal, is made waving in concentric circles, and can therefore yield as the pressure of the atmosphere increases; and by a very simple device the yielding ot the disk operates a hand upon the dial or register. Those acquainted with the subject will easily understand the instrument from the foregoing remarks. It is carried with perfect ease, and is as little liable to accident as a pocket compass.

Water Wheels.

Several real improvements were made in water wheels last year, and patents secured for the same, among which is a wheel intended to work upon a vertical shaft, and which receives the the water upon it entirely around the hub. After the water reaches the wheel it is received into openings or tubes, extending a considerable distance around the wheel. The bottoms of these tubes incline downwards and the vertical sides approach each other to such a degree that the areas of the cross sections of the tube are every where equal; and the water is finally discharged tangentially, in a comparatively thin vertical sheet, immediately outside of the wheel.

Another patent has been granted for a wheel very similar to the foregoing, involving much of the same principle, but varying in some of its details.

Horizontal wheels have also been used with several shutes, and the wheels so constructed that when heavily loaded the water would be discharged on the interior of the wheel, and operate partially by reaction; and when lightly loaded the water would be discharged principally at the outside of the wheel. The water from each shute should of course be discharged from the wheel, when moving at high speed, before the same buckets receive the water from the second shute. Heretofore no considerable space has been prepared for the escape of the water, except under the wheel; and when the speed is very high, gravity is sufficient for the escape of all the water; but considerable quantities are carried around and interfere with the action of the succeeding shute. To remedy this evil, the wheel is placed between three or more flumes, arranged in a triangle, &c.; each flume has a shute, and at the angles of the combined flume there is sufficient space to discharge the water tangentially from the wheel; which is the only way to make the discharge perfect.

Ten patents were granted last year for inventions and improvements in water wheels.

Agrarianism.

A good-humored doctor in one of our small towns, while jogging comfortably along in his own 'vehicle,' was met by a poor fellow, who also was approaching on his private conveyance, (which, by the way, was nothing more than the legs that his mother had provided him with, now grown, however to rowdyhood.) 'Get out of that gig,' says he, gruffly, to the doctor; 'you have no more right to it than I have.' The doctor wishing to penetrate into the fellow's private views of things,' reined in, and replied, 'But how? would you have me cut my horse and gig in two, to give you half?"

'No: sell 'em and divide.'

'But if I should do so, you will soon have spent your part of the proceeds, while I shall have mine. What is to be done in that case?'

'Divide again,' said the fellow.

They immediately divided—in other words parted company.

United American Mechanics.

We learn that a new Council was instituted in Camden, N. J., on Thursday evening, last week, under the title of Camden Council, No. 6. This order is progressing rapidly—having already reached fifty-six Councils in the State of Pennsylvania, and six in New Jersey, four in Delaware, and several in each of the adjoining States.

Physiognomy.

This science was once as popular, as Phrenology. Lavater had his disciples, who were enthusiastic admirers of his system, and at the present day there are many who still firmly believe in his theory, while at the same time there is not one but is impressed favorably or unfavorably with the physiognomy of a person at first sight. It has been said that the face is the index of the mind, but this assertion wants facts to prove it. A beautiful countenance is no evidence of a good heart or a kind disposition, but oftentimes the very reverse. Nero was of a beautiful countenance, and the Marchioness de Brenvillers the celebrated poisoner, had an insinuating address and lovely features. Yet although Physiognomy, by the wise design of Providence, could not be reduced to a science, there is still some truth in its general features which are:—

1. The signs of long life, are strong teeth, a sanguine temperament, middle stature, large deep, and ruddy lines in the hand, large muscles, stooping shoulders, full chest, firm flesh, clear complexion, slow growth, wide ears, large eyelids, &c.

2. A good genius may be expected from a thin skin, middle stature, blue bright eyes, fair complexion, straight and pretty strong hair, an affable aspect, the eye-brows joined, moderation in mirth, an open cheerful countenance, the temples a little concave, &c.

3. A good memory is commonly attached to those persons who are smaller, yet better formed in the upper than the lower parts, not fat, but fleshy, of a fair delicate skin, with the pool of the head uncovered, crooked nose, teeth thick set, large ears with much cartilage.

4. A good imagination and thoughtful disposition is distinguished by a large prominent forehead, a fixed and attentive look, slow respiration, and an inclination of the head.

5. Strength of mind is signified by light curled hair, a small body, shining eyes, but a little depressed, a grave intensive voice, bushy beard, large broad back and shoulders.

Perils of Falsehood.

In the beautiful language of an eminent writer—"When once a concealment or deceit has been practised in matters where all should be open and fair as day—confidence can never be restored, any more than you can restore the bloom to the grape or the plumb you have once pressed in your hand." How true is this! and what a neglected truth by a great portion of mankind. Falsehood is not only one of the most humiliating vices, but sooner or later it is certain to lead to many serious crimes. With partners in trade—with partners in life—with friends, with lovers, how important is confidence! How essential that all guile and hypocrisy should be guarded against in the intercourse between such parties? How much misery would be avoided in the history of many lives, had truth and sincerity been the guiding and controling motives, instead of prevarication and deceit?

"Any vice," said a parent in our hearing, a few days since, "any vice, at least among the frailties of a milder character, but falsehood. Far better that my child commit an error or a wrong and confess it, than escape the penalty, however severe, by falsehood and hypocrisy. Let me know the worst, and a remedy may possibly be applied But keep me in the dark—let me be misled or deceived, and it is impossible to tell at what unprepared hour a crushing blow, an overwhelming exposure may come."

Working for a Living.

Whence originated the idea that it was derogatory to a lady's dignity, or blot upon female character, to labor? And who was the first to say sneeringly, 'Oh, she works for a living?' Surely, such ideas and expressions ought not to grow on American soil! The time has been, when ladies of the first rank were accustomed to busy themselves in domestic employment. Homer tells us of princesses who used to draw water from the springs, and wash with their own hands the finest of the linens of their respective families. Lucretia used to spin in the midst of her attendants, and the wife of Ulysses, after the siege of Troy, employed herself in weaving until her husband returned from Ithaca.

Disbudding Fruit Trees.

The increasing attention to the cultivation of superior sorts of fruit, gives additional interest to such hints, as emanate from really practical men. In Maund's "Botanic Garden and Fruitist" for June, the subject of disbudding fruit trees at the season, is so practically treated, that a hint or two from it must be useful. It is founded on the principle of "prevention is better than cure." By disbudding trees early in the summer, the growth of the superfluous wood is prevented, and the whole power of the tree is thrown into that portion which is retained as useful for bearing. It will be clear, even to the unlearned in these matters, that this system must be superior to permitting the tree to exhaust itself on that which is to be cut away. Another evident advantage arises from the light being fully admitted to act on, and properly ripen the wood that is retained; for it is stated, "light is more especially required, to act on the leaves belonging to the embryo buds, or spurs, which are ultimately to produce the fruit." We give one other extract from amongst these directions, very useful for those to remember who cut, or direct the cutting of, trees, many of which are pruned by those possessing no knowledge of the subject. "The plum, apricot, pear, apple, and the red and white currants are instances of fruit trees bearing principally on spurs; whilst the raspberry, black currant, vine, peach, and morello cherry produce the chief of their crop on the young shoots."

Progress of the United States.

When Washington was inaugurated the first President of the United States, a population of some 3,500,000 souls then occupied thirteen States on the Atlantic coast, covering an area of some, 473,000 square miles. The population of these United States have swelled to 20,000,000. They have added 814,810 square miles to their represented territory. They have risen to the first rank as a commercial nation and have successfully disputed with England the Dominion of the seas. They have become an object of dread to the despots of Europe, and of admiration and hope to the people of the world. Their flag is respected in all quarters of the world, and their friendship courted by all nations. They have successfully pushed their claims to the Pacific Ocean, and doing so, have been declared in Europe as the first nation that has "obtained from the fears of England what her sense of justice would not yield." These wonderful results are, doubtless, mainly to be attributed to the virtue, energy and freedom of the people.

Kind Words do not Cost Much.

They never blister the tongue or lips. And we have never heard of any mental trouble arising from this quarter.

Though they do not cost much, yet they accomplish much:

1. They help one's own good nature and good will Soft words soften our own soul. Angry words are fuel to the flame of wrath, and make it blaze the more fiercely.

2. Kind words make other people good natured. Cold words freeze people, and hot words scorch them, and sarcastic words irritate them, and bitter words makes them bitter, and wrathful words makes them wrathful.

There is such a rush of all other kinds of words in our days that it seems desirable to give kind words a chance among them. There are vain words, and idle words, and hasty words, and spiteful words, and silly words, and empty words, and profane words, and boisterous words, and warlike words.

Kind words also produce their own image on men's souls. And a beautiful image it is. They soothe and quiet and comfort the hearer. They shame him out of his sour, morose, unkind feelings. We have not yet began to use kind words in such abundance as they ought to be used.

Improved Telegraph Tubes.

Welded iron tubes are said to be far superior to cast iron tubes for Railway telegraphs in England. So says the London Railway Record. We are not informed how, and we have some doubt as to the correctness of the statement,

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NEW INVENTIONS.

A New Propeller.

Mr. Hewitt, of Boston, has just invented a new steamboat propeller, which is said to be vastly superior to all others now in use. It is so arranged as to place sixteen paddles in the water at once, all of which act horizontally, entering and leaving the water vertically, without having any back water at all. Letters patent were secured some time since, and a company is formed who are now building a boat on this principle.

Mr. Hewitt is about to secure patents in the different kingdoms of Europe. The invention is said to be so simple that it can be readily applied to boats which were originally fitted with the common wheels.

Improvement in the Locomotive Engine.

Mr. Goodfellow, of Ida Mills, Troy, has made some important improvement in simplifying the reverse gearing and valves of locomotives. It is said to be considerable of a saving in the construction of the engine, and less liable to get out of repair than those now in use. We hope to be able to give in a short time a representation, by an engraving of the invention.

Steam Ice Cream.

The application of steam to the manufacture of ice cream is the invention of G. R. Lillebridge of this city. What he claims is the application of steam and steam power to the manufacture of ice cream. First in facilitating the preparation of the cream for freezing. And secondly, so as to secure an equable motion of the freezing cans, by which the cream is frozen at a uniform temperature in halt the time and at half the expense of the ordinary mode. This invention has been put in successful operation in this city.

Newly Invented Loom.

A very important improvement has been made within a few months, in a loom for weaving, by Mr. Edward Norfolk, a young machinist of Boston. The principal improvement is in the movement of the shuttle, which, by this process, is effected entirely without noise. A very considerable addition also is made to the speed of the loom.

After some time spent in experimenting this machine, a patent was obtained, and a working loom put in operation at the James Mills, in Newburyport. The trial was said to be perfectly satisfactory.

New Coal Shute.

The Lehigh Coal Company are erecting a Shute for the purpose of doing away with the inclined planes in letting down the coal from the termination of the railroad to the boats.—The length of this shute is 375 feet. It will contain when full, between five and six hundred tons of coal, which can be drawn from it into the boats, in a very short time, the coal in its progress passing through a rolling screen which will clean it and separate the different sizes, each size passing into a boat prepared to receive it.

Suspension Railroad.

Mr Randall, of this city, has completed his model of a project for making a Railroad above the streets from the Battery to Union Place. The invention has met with much commendation, but for our own part we must confess that we are not yet able to appreciate or see clearly into its advantages.

Musical Clock.

Mr. Timme, of Brooklyn, has constructed a clock which can play twenty four tunes, commencing a new one every hour. It is 6 feet high and occupies a space eighteen inches wide. The dial is ten inches in diameter and it has the 12 signs of the zodiac painted on it. The face is cased with beautiful and elegant carved work, and the cost is only $130.

Paine's Marine Locomotive.

A small steamer named "Excelsior," was recently launched at Worcester, Mass., we believe for an experiment. While waiting for her machinery, which is nearly completed, temporary cranks have been attached to the wheel shaft for the purpose of experiment.—She performed seven miles an hour with the power of two men thus applied—a speed hitherto unsurpassed by a vessel of her measurement with so small a power

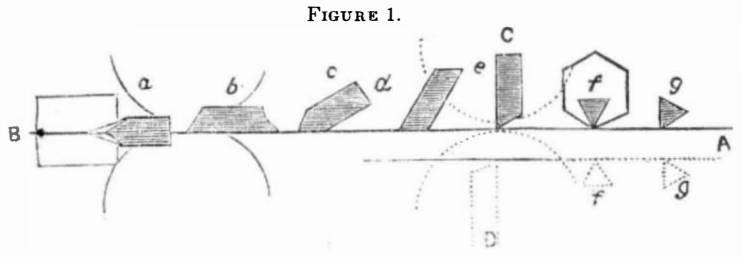
Mechanical Manipulation.

While the world has been flooded with treatises on architecture and chemistry and the steam engine, very little has been done for the more minute but more necessary parts of mechanics, viz. the tools for making machinery—the very foundation of the art. Mr. Charles Holtzapfel, a scientific mechanic of London, is now publishing a series of works on this subject, and as we are superior in the manufacture of a great many tools, and in the manner of cutting, to the English, we hope that some intelligent New England mechanic will be stirred up to give the world a work which will be *Excelsior*.

All edge tools may be considered to be wedges formed by the meeting of two straight surfaces. Some tools are pointed from the meeting of three or more planes. Occasionally, as in the hatchet and chipping chisel, &c., the tool is ground from both sides, while plane irons, &c. are ground on one side only. The general character of cutting tools depend upon the substances to be operated on, while the form may depend upon what is best adapted to the convenience of the mechanic. Cutting tools are divided into three kinds, viz. paring, scraping and shearing tools. First, paring or splitting tools the angles of which do not exceed 60 degrees. Second, scraping tools with thick edges the angles of which measure from 60 to 120 degrees. Third, shearing or separating tools with edges from 60 to 90 degrees.

The following cuts represented by the italic letters are a number of tools that are used, and those represented by capital letters A B C D, merely the arrangement of the classes.

FIGURE 1.



a. The cleaver for splitting. *b*. The side hatchet, drawing knives, paring chisels and gouges, the spokeshave, the graver, and most of the engineers cutting and planeing tools for metal, &c. *c*. The turning chisel for sott wood, the chipping chisels, for iron, stone, &c. *d*. The joiner's chisels, and carving tools, used with the bevils downwards, the joiner's planes, the cross-cut chisel for metal, and other metal tools.

[*e*, *f*. Scraping Tools proceeding from A to B.]

e. When single, the scraping tools for turning the hardwoods, ivory and brass, the handplane for metal, and when multiplied, the various saws and files. *f*. When single a triangular scraper for metal, and when multiplied the cross-cut saw for wood, and also polygonal rimers with any number of sides, for metal.

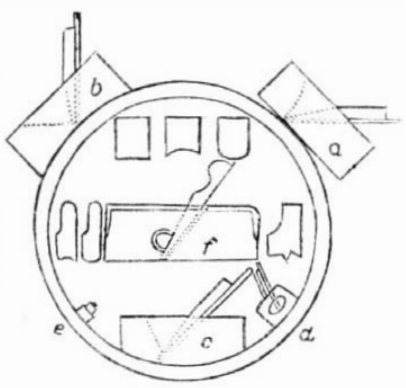
[*e*, *f*. Shearing Tools, proceeding from C to D.]

e. When duplex, shears with edges from 60 to 90 degrees, commencing with delicate lace scissors for single threads, and ending with the engineer's shears for cutting iron bars and plates upwards of an inch thick; also duplex punches with rectangular edges, for punching engines and fly-presses.

e. When single, the carpenter's firmer and mortise-chisels, the paring knife moving on a hinge, and cutting punches for gun wadding and thin materials. *f*. When duplex, common nippers for wires, more generally, however, the blades are inclined, so that one bevil of each blade lies in one and the same plane, and which is vertical to A B, as at *g g*. *f*. When single, the smith's cutting-off chisel.

The small Indian adze or Bassoolah, instead of being circular, like the European adze, is perfectly flat, and is placed upon its handle at an angle of 45 to 50 degrees, its handle is very short, and it is used with great precision by the nearly exclusive motion of the elbow joint. The chisel, when inserted in one of the several forms of stocks or guides, becomes the plane, the object of which arrangement being to limit the extent to which the blade can penetrate the wood, to provide a definite guide for its path, and to restrain the splitting in favor of the cutting action.

FIG. 2.

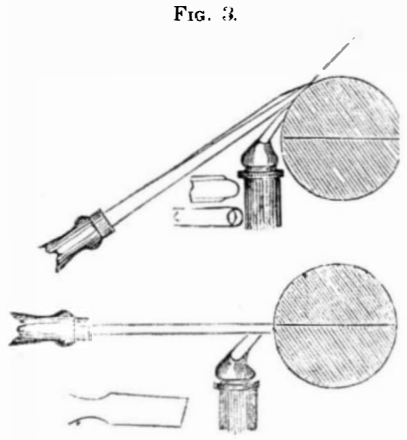


Although convex surfaces such as the outside of a hoop, may be wrought by any of the straight planes, applied in the direction of a tangent as at *a*, it is obvious the concave plane *b*, would be more convenient. For the inside of the hoop, the curvature of the plane must not exceed the radius of the work: thus *c*, the compass plane, would exactly suit the curve, and it might be used for larger diameters, although in a less perfect manner. For the convenience of applying planes to very small circles, some are made very narrow or short, and with transverse handles such as *d*, the plane for the hand-rails of staircases, the radius of its curvature being three inches; it resembles the spokeshave *e*, as respects the transverse handles, although the hand-rail plane has an iron wedge and stop much like those of other planes.

The sections of planes, are also either straight, concave, convex or mixed lines, and suited to all kinds of specific mouldings, but we have principally to consider the more common features, namely, the circumstances of their edges and guides; first, of those used for flat surfaces, called by the joiners, bench planes; secondly, the grooving planes; and thirdly, the moulding planes.

The various surfacing planes are nearly alike, as regards the arrangement of the iron, the principal difference being in their magnitudes. Thus the maximum width is determined by the average strength of the individual, and the difficulty of maintaining with accuracy the rectilinear edge. In the ordinary bench planes the width of the iron ranges from about 2 to 2½ inches.

FIG. 3.



The tools used in turning the woods act much in the manner of the blades of the carpenter's planes; but as we have now, at all times, a circular guide in the lathe-mandrel, we do not require the stock of the plane or its rectilinear guide. Although if we conceive the sole of the plane applied as the tangent to the circle, the position it would give is nearly retained, but we are no longer encumbered with the stock or guide. In turning-tools for soft woods, the elevation of the tool, and the angle of its edge, are each of them less than in ordinary planes, and in those for hard woods both angles are greater. For example, the softest woods are turned with tools the acute edges of which measure about 20 to 30 degrees, and are applied nearly in coincidence with the tangent, as in the above figure.

These tools closely assimilate to the spoke shave, which is the plane of the lowest pitch and keenest edge. On the contrary, the hardest woods may be turned with the above soft wood tools, applied just as usual; but on the score of economy and general convenience, the edges are thickened to from 60 to 80 degrees, and the face of the tool is applied almost horizontally on the lathe-rest, or as a radius to the circle, thus agreeing with the opposite extreme of the planes, in which the cutter is perpendicular and much less acute, as in the scraping and toothing-planes, which are only intended to scrape, and not to cut

The hard wood tools may be figured and employed as scrapers in turning the members of the capital or the base of a column, or similar objects in hard wood or ivory; but if we try the same tools on deal, ash, and other soft woods, we shall in vain attempt to produce the capital of another column, or even its cylindrical shaft, with a thick horizontal tool as in hard wood; for the fibres would not be cut but forcibly torn asunder, and the surface would be left coarse and ragged. But a reference to the planes with which the joiner proceeds across the fibres of deal, will convey the particulars suited to the present case; the iron is always thin and sharp, and applied in an oblique manner, so as to attack the fibre from the one end, and virtually to remove it in the direction of its length.

A Novel and Simple Engine.

Mr. William Ball, of Chicopee Falls, Mass has resorted to steam in preference to water power, and has constructed an engine at once simple and ingenious, and spoken of in the most flattering terms by our able exchange, the Chicopee Telegraph, The engine occupies a space of only about a square yard upon the floor. The cylinders rest upon trunnions, upon which they are balanced at their centres in an upright position. The piston rod is attached directly to the crank of the drive wheel, and as the crank revolves, the necessary lateral motion is accommodated by the vibration of the cylinder upon its journal. A small steam box encloses the wrist of one of the journals; and in this wrist are the two orifices which conduct the steam to and from each end of the cylinder. The oscillation of the cylinder as the crank revolves brings each of the orifices alternately in front of the steam pipe and of the escape pipe, so that no slide valves are required. The force pump is worked as a separate piece of machinery by a drum and belt. The engine is thus seen in the simplest possible form. It is of six horse power, and the amount of fuel required to drive it is said to amount to only about one-fourth of a cord of wood per day.

New Parasol Spring.

A Mr. Sangster, of Regent street, London, has applied prepared India Rubber for superseding springs of metal for the expansion of parasols, and for compressing the ribs of them and of similar articles. The india rubber is prepared by a chemical process into the shape of a small pipe or hose. By this means the elastic power and the tenacity of the gum are increased to a perfectly marvellous degree.—A small ring of the material so prepared, less in width than the eighth of an inch, is cut from the pipe and placed around the tops of the ribs. When the ribs are expanded, the elastic power of the ring enables it to be stretched so as to suit the exigency, while its leverage and power of contraction are so great that directly the power is removed by which the expansion is secured, it forces the ribs together, and keeps them firmly compressed.—As an application of science to a practical advantage, it is very curious and convenient.

Galvanic Discovery.

An electric current has been discovered to exist between the exterior and interior muscles of animals. It was discovered by an instrument called the galvaniscope which can detect very minute influences. Of course the current is more strong in some animals than others. A very interesting paper on this subject has been read before the British Scientific Association.

There are 350,000 seeds in the capsule of a tobacco plant. Roy, the celebrated Botanist, counted 32,000 seeds in the head of a poppy.

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NEW YORK, AUGUST 7, 1847.

The Relationship of Science.

In looking abroad upon the world and considering the condition of its inhabitants, we perceive that we are very far from being independent beings, for within ourselves we possess not the elements necessary for the support of life, but are dependent on the most insignificant things around us for the means of existence—we cannot live a moment without intercourse with the world that surround us, and while we live upon the subtle air, at the same time there are many other substances necessary to our existence which are not so bountifully bestowed as air and water, but which are as necessary, and to procure them in the most economical manner, experience has led to the founding of science, which is the arranged result of mental and physical exertion.

All the necessaries and comforts of life are derived from objects around us, but these in a state of nature are not generally fit for our use, hence, although the elements which support our existence are scattered abundantly within our reach, they require labor to fit them for use. Look at the bread which we eat, and reflect for a moment upon the great amount of science and mechanical skill called into requisition in bringing it into such a light and easily digested substance. In the first place, there is the science of agriculture, which embraces a knowledge of soils, of plants and their nature, and the food or salts required for their growth and the best manner of producing such chemical results. The earth is covered with the trees of the forest and man goes forth with his axe in his hand to cleave them to the dust and on their ruins make the golden corn to grow. But think for a moment upon the great amount of skill and science that are brought into requisition in making the simple axe. The mine has to be dug, the iron ore has to be roasted, the iron bloom has to pass through an intricate process ond from the crude mass, there is the trip-hammer to form it, the wheel or engine that drives, the skill of tempering and the art of finishing, and then the simple helve is fashioned now in a machine, and man looks on and sees a rough stick chiselled out by an inanimate hand to fit the iron wedge that levels the trees of the forest and makes a pathway for the smiling vineyard or the laughing wheat field. Just reflect for a moment upon the study and experience and labor expended in acquiring a knowledge of the combinations of science and mechanical art necessary to make a simple axe, and you will at once be impressed with the value of science and readily perceive its close relationship to man.

Water Wheels.

There are three principal points of importance to be governed by, in constructing a wheel and applying water properly; first, the velocity of the water should be greater than the velocity of the surface of the wheel. Second, the surface motion of the wheel should be as fast as a body of water will fall without losing more than one-eighth of its weight, which we estimate at 6 feet per second, allowing the water to have a velocity of ten feet per second when received on a wheel of twenty-four feet diameter,—Smeaton says three feet, Banks says the square root of the diameter of the wheel. Third, the throat or opening of the buckets should be large, say four to five inches, so as to receive and discharge the water freely.

Let us examine by theory, the operations of two wheels twenty-four feet diameter, one of them geared to three and a half feet per second, the other one at seven feet surface motion. Make the standing head two feet above the water gate, the opening of the gate ten feet long, three inches wide, the velocity of water is eleven feet per second, apply the same to each wheel, allowing three-eighths of the wheel to be constantly retaining water, the repit of water per second will be 47,529 cubic inches; now three-eighths of the circumference of twenty-four feet diameter is twenty eight feet, which passes off in eight seconds, at a surface speed of 3½ feet; consequently the wheel retains 220 cubic feet=13750 lbs. avds. of water 13750X3½=48125 lbs. momentum, acting on the short end of a lever 29 inches to 240 inches, which is necessary to give the mill stones a speed of 152 revolutions per minute 240 : 48125 : : 29=5815 lbs. momentum on the stone pinions. Again at a surface speed of seven feet per second 28 feet will pass off in 4 seconds, retaining 110 cubic feet=6875 lbs. avds. of water, 6875X 7=48125 lbs. momentum, action on the short end of a lever 29 inches to 150 in propelling the mill stones 152 revolutions per minute 150 : 48125 : : 29=9304 lbs. momentum on stone pinions, which gives a balance of power in favor of the fast water wheel, of 3489 lbs. per second.

Now, as to the accuracy of this estimate in connection with practice, we shall not pretend to determine, but from personal experience and observation in practical operations, we are well satisfied that the fast water wheel will perform the same labor with much less water than the slow one; and this is not the only advantage gained; it is obvious that the quick wheel does not require as much strength of material as the slow one in consequence of its not retaining as much load of water. Another advantage is, the fast wheel is much the easiest governed under fluctuations of labor and heads of water.

Astronomical Research.

Professor Gerling of Narburg, Europe, has written a letter to Lieut. Gillies inviting the co-operation of Americans in a great astronomical enterprise, having for its object to effect a new and more precise determination of our distance from the sun, on which depends the dimensions of the orbits of all the bodies in our system. He is known to the literary world as the fellow laborer with Gauss in the triangulation of the kingdom of Hanover, and as the author of the most complete treatise extant on the art of properly assessing the small but necessary errors of observations, so as to obtain, even from slightly imperfect data, the perfect dimensions of a trigonometrical survey. This learned astronomer is now directing his efforts to a more accurate determination of the dimensions of the solar system.

Editor Turned Artist.

The fresco upon Trinity Church New Haven, was put there by some intelligent Italian artists from New-York. Among them was one who is now an exile from his country for political offences, which to this day have not been forgiven. The individual to whom we allude is less than forty years of age, and belongs to one of the best families in Italy. Formerly he was Postmaster at Palermo, and during that time conducted an influential political journal. Some fearless articles from his pen offended the Government, and he was compelled not only to relinquish his office and abandon his paper, but also to leave his friends and home perhaps forever. Reaching this country in needy circumstances, and having no profession by which he could sustain himself, he turned his artistical taste to fresco painting, and in that department has become eminently successful.

Consumption of Fuel.

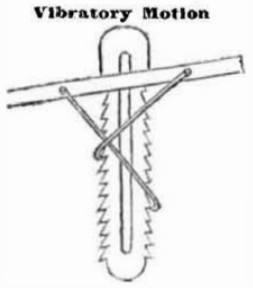
The steamer Empire on a single trip from Buffalo to Chicago, consumes *six hundred cords of wood*. Calculating that she performs thirteen trips during the season, she will consume two hundred and thirty-four acres of timber, and employ forty wood choppers at an expence of over $10,000. This is a small item in the expense of this mammoth steamer; yet she clears from $20,000 to $30,000 a season. By this some idea may be formed of the profits of vessels engaged in the lake trade. At the present time there are sixteen first class steamboats engaged in this trade.

Oil Saver

This invention which we noticed some time ago, is, we are informed, used upon the Trenton Railroad and by the Lawrence manufacturing company at Lowell, Mass., under the most favorable circumstances.

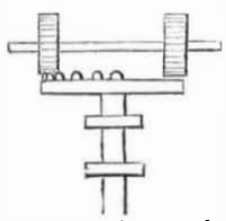
MECHANICAL MOVEMENTS.

Vibratory Motion



In the application of notched instruments for particular purposes, the above cut will show how that by a rack and catches an upright shaft may be raised gradually by the alternate motion of a lever. On the cross arms where the catches are fastened, it will be seen that a vibratory motion communicated to the same, will lift catch by catch from each notch stroke for stroke, the one holding the shaft while the other is set free, thereby raising the rack shaft, or letting it fall at pleasure. The most beautiful application of the balance catch and rack wheel, is to be seen in our common clocks The vibratory motion of the pendulum communicates circular motion to the wheels of the clock, by the simple balance catch and rack wheel in combination.

Alternate Circular Motion.



This cut represents a horizontal shaft with two wheels and a perpendicular shaft with the arc of a wheel the teeth of which are represented like notches on the cross-bar The horizontal shaft revolving in one direction will produce an alternate revolution in the perpendicular shaft as the teeth of the horizontal wheels are set at contrary angles, the one wheel catching the rung teeth on the upright shaft as the other drives the shaft round.—This arrangement was in use before the beautiful bevel gear was known, the wheels were generally made of oak and did more work than would be supposed and noiselessly as the gently singing rill. Such kind of a machine was used for grinding indigo in Germany.—The upright shaft was fixed to a swivel above and moved in a socket below in the inside of an iron pot. On the foot of the shaft were two arms which whirling round two large cannon balls on the bottom, by continued trituration reduced the indigo to the finest powder.

A Mechanic Nobleman.

The Editor of the Christian Watchman in speaking of Mr. Lawrence's splendid donation to educate mechanics says:

'We are acquainted with a most accomplished mechanic in this city, who turns out from his workshop some 2 or $300,000 a year in the shape of steam engines, &c. &c., of the most beautiful finish and durability, and has in his employ over one hundred men. This man was kept on a shoemaker's bench until he attained his majority, in a little country village in this State. He soon, however, broke away. His mind was altogether too expansive to be cramped up in a shoemaker's shop, and he left his bench for the city and engaged himself by the week to a machinist, a business more congenial to his feeling and taste, since which time his talents have carried him up step by step, until he has found himself in the very first rank of those of his trade; and it cannot be otherwise than that he is destined, and at no distant day, to be one of our richest men, all of which grows out of his brilliant mechanical mind.

Steam in Great Britain.

In 1841, the United Kingdom and colonies owned but two steam vessels; in 1815 they had 10; in 1820, 43; in 1830, 315; and in 1844, 988. Scotland, which took the lead in steam Navigation, has ever since shown a large proportional list of vessels. Of the above 988, England had 679, Scotland 137, Ireland 81, Guernsey, &c. 3, and the colonies 88 The total burden was 125,675 tons.

The Ice Trade.

They write us from Batavia, says the Paris Presse, that the commerce in ice, but recently commenced in the burning climate of India and the Indian Archipelago, has already become to the United States, who principally carry it on, one of their most lucrative articles of export. In a climate the temperature o which is almost constantly from 26 to 28 degrees of Reaumur, they have ices; they drink icea champaign in Calcutta, Madras, Bombay, Batavia, Manilla and Canton, where the alcarasa was lately the only refreshment in use.—To give some idea of this new equatorial commerce and its importance, we need only mention one house in Boston which in a single year has sent to Asia 101 vessels with cargoes of ice, which have yielded eighteen millions of florins. This is almost as much as the product of the whole wine harvest of Bordeaux.

Steamers from New Orleans to England.

It is announced in a recent letter from England in the National Intelligencer, that another channel of communication has been opened between the United States and England, by the agreement of the Royal West India Mail Company that one of their steamers should start from New Orleans monthly with passengers, &c., for England. This arrangement with the British Government and the Mail Company has been effected through Mr. G. Musson, of New Orleans, who has resided some months in London attending to business. The first steamer will leave New Orleans, it is expected in September. It is calculated that New Orleans alone will furnish this line of steamers with twice the number of passengers that all the West India Islands have hitherto done.

Lightning and Telegraph Wires.

Professor Olmstead, of Yale College, says he has no doubt that the wires of telegraphs have an effect on electricity. "As the storm comes up, and especially when over the wires, say fifty or a hundred miles distant, the lightning is attracted by the wires, which can be proved by any one remaining in the telegraph office for half an hour. About the time the storm is coming up the wires are continually filled with electricity. It is my opinion we shall never have very heavy thunder showers or hear of lightning striking, so long as we have telegraph wires spread over the earth."

Prof. Olmstead never said any such a thing yet the above story has been circulated far and wide.

Curiosities Sold.

A short time ago the curiosities of the Dead Letter office were sold at Washington, among which were a number of books on various subjects, and a quantity of jewelry—such as gold rings, breast pins, guards, chains, ear rings, miniature cases, miniatures, models, silver watches, bracelets, silver rifle pistol, &c. A quantity of music for pianos, guitars, violins, flutes, &c. Dry goods of various kinds, coats, pants, shirts, children's dresses, medicines, pocket-books, razors and strops, gold plates and teeth, and many other articles, altogether making as curious a collection as need be looked at.

To New Subscribers.

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SOUTHERN CORRESPONDENCE.

Wheeling, its Manufactures, &c. &c.

WHEELING, VA., July 15, 1847.

Having partaken of a hearty breakfast at mine host's of Uniontown, we started for the next and last point of the stage line, Brownsville, where we took the steamer to Monongahela River for Pittsburg. This is a beautiful country, fine wide river, clear, with the stream running at an average of three miles and a half per hour. Coal is found in abundance here, and the banks all along the river present thickly settled little villages with coal mines, some or which are some hundreds of feet from the base of the mountain. The coal is sent down to the river by inclined planes, put into flats or upon rafts, and from thence taken down to Cincinnati, New Orleans, &c.—We reached Pittsburg at 7 in the evening, and here nothing but smoke, the sound of trip hammers, furnace blasts, &c. all which give it the the title of "Iron City," meet the eye and ear. Pittsburg is a busy, stirring city, full of enterprise and go-a-headism. I visited the Penn Mill (spinning and weaving) over in Alleghany City, where excellent goods are turned off. The Alleghany and Monongahela rivers meet at the western part of this city, which forms the mouth of the Ohio river. On Thursday we took the Wisconsin steamer, having yet one hundred miles to go before reaching our place of destination. The Ohio river runs rapid, at the rate of five miles per hour. There are different little manufacturing towns on the river side, the machinery of which is all propelled by steam, fuel being so cheap. We arrived at Wheeling about 6 in the evening, where we landed and soon found it to be a very enterprising city. The population is over eleven thousand, the city mostly built of brick, some splendid buildings of granite and free stone. The people here appear to live comfortably, so far as the necessaries of life are concerned. You may judge of the enterprise of the Wheelingtonians, when I inform you that our principal stores open at 5 in the morning. There are several large and some small foundries, engine builders, steamboat carpenters, large machine, iron and wood turning establishments, glass works, extensive wagon shops, and permit me to say, I have never seen workmanship, both in wood and iron, so perfect as here. There is also one small mill (spinning only,) one little silk mill, and the Wheeling Cotton Mills, for which we are engaged. There is much to cause the people here to love this section of the country, markets are so very low. The following are the present prices, being one half higher than generally, owing to the exportation of produce to England. Flour $5 per barrel, butter 10 cents per lb., eggs 5 to 8 cents per dozen, chickens 6 1-4 cents, cheese 4 to 6 cents, turkies 18 3-4 to 25 cents, beef 4 cents, mutton 4 cents, veal 2 and 3 cents, vegetables a mere trifle, coal $2,45 per ton of 20 cwt., wood $2½ per cord. Workmen's wages are good; laborers average 75 cents per day. The place is remarkably healthy, no fever and ague ever known in this quarter. But what makes Wheeling to be regarded by me is, it is a place of good morals; so far as I have seen a Sabbath keeping, Bible reading community, and being settled by New Englanders. it possesses something of the "Puritan spirit." There is one Episcopal church, one Presbyterian, O. S., the minister of which, Rev. Mr. Weed, comes from Albany, one Baptist, one Methodist, one Dutch Reformed, one Seceder, one Roman Catholic, and other churches, in the city. The lower end of the city is smoky when viewed from off the river on board the steamer, but when you get up into the middle part of it you find large extensive warehouses of all descriptions. The people seem to strive with each other in the laying off their little plots in front of their houses, which exhibit generally all over, comfortable and convenient residences. The people seem to cultivate the art of music upon a large scale, both vocal and instrumental; going along the streets at night every other door sends forth the notes of the piano. How my heart warmed the other evening on passing a fine little whitewashed cottage overun with honeysuckle vines and roses, the windows open to catch the vesper breeze, to hear a sweet toned daughter of Eve sing to her piano, "Jock o' Hazledean," it truly was the passing of the light of other days. We have two daily papers, the "Times" and "Argus," the former Whig and the latter Democrat, besides two tri-weekly and two weekly. Workmen are all paid weekly, none of your truck, the real hard stuff, the *genywine* brads. Let me say, too, I have never seen a loafer nor a beggar since I came to this part of Virginia. The people Down East form very erroneous opinions of many parts of Western Virginia. I have seen more colored people in one hour at Ellicott's Mills than since I came here; the fact is, they are respected and appear respectable, and those of them who are with masters are *too well used to run away*. I think Jack Downing might bet on the head of Wheeling, to match any other place in the Union for dogs, roosters and musquitoes—at night sometimes you would imagine the dogs were flying round in hundreds. The river is at present very low. The Telegraph passes Wheeling on the other side of the river, on the way to "the Queen City of the West," Cincinnati. The crops here, and over in Ohio, are beautiful, a good part cut down. Steamers are every day carrying down great numbers of immigrants for the Far West. Hundreds of steamers are plying along the Ohio and Mississippi.

Thus briefly have I given you a sketch of my journey to. and opinion of, the City of Wheeling, Virginia, and now let me but add, this is the spot for the industrious workingman. I forgot to mention that we have three lodges of the I. O. of O. F, the Franklin, Virginia and German Lodges, besides the Sons of Temperance.

Very respectfully, BRAMBLE BRAE.

Hanging Bridges of South America.

There are two kinds of suspension bridges common in the mountainous parts of South America—namely, the *puente de soga* and the *huaro*, which are thus described by Dr. Von Tschudi, the Peruvian traveller:—

The soga bridges are composed of four ropes made of twisted cowhide and about the thickness of a man's arm. The four ropes are connected together by thinner ones of the same material, fastened over them transeversely.—The whole is covered with branches, straw, and roots of the agave tree. On either side a rope, rather more than two feet above the bridge, serves as a balustrade. The sogas are fastened on each bank of the river by piles, or rivetted into the rock. During long-continued rains, these bridges become loose, and require to be tightened; but they are always lower in the middle than at the ends, and when passengers are crossing them they swing like hammocks. It requires some practice, and a very steady head, to go over the soga bridges unaccompanied by a puentero or bridge guide. However strongly made, they are not durable; for the changeableness of the climate quickly rots the ropes, which are made of untanned leather. They frequently require repairing, and travellers have sometimes no alternative but to wait several days until the bridge is passable, or to make a circuit of 20 or 30 leagues. The puente de soga of Oroya is fifty yards long and one and a half broad. It is one of the largest in Peru; but the bridge across the Apurimac, in the province of Ayacucho, is nearly twice as long, and it is carried over a much deeper gulf.

The huaro bridge consists of a thick rope, extending over a river or across a rocky chasm. To this rope are affixed a roller and a strong piece of wood formed like a yoke, and by the means of two smaller ropes, this yoke is drawn along the thick rope which forms the bridge. The passenger who has to cross the huaro is tied to the yoke and grasps it firmly with both hands. His feet which are crossed one over the other, rest on the thick rope, and the head is held as erect as possible. All these preliminaries being completed, an Indian, stationed on the opposite side of the river or chasm, draws the passenger across the huaro. This is altogether the most disagreeable and dangerous mode of conveyance that can be conceived. If the rope breaks, an accident of no unfrequent occurrence, the hapless traveller has no chance of escaping with life, for, being fastened, he can make no effort to save himself. Horses and mules are driven by the Indians into the river, and are made to swim across it, in doing which they frequently perish, especially when, being exhausted by a long journey, they have not strength to contend against the force of the current.

Railroads in Great Britain.

It was stated recently in the British House of Commons that £96,000,000 sterling had been already expended on railways, and that the gross returns upon these in operation amounted to £8,000,000 per year of which £5,000,000 was derived from passenger traffic and £3,000,000 from that of goods, and that, but for the introduction of railways, the same amount of traffic would have cost the public £21,000,000. So much for the saving in money. As respects the saving in time, it is stated by Mr. Robert Weale, who has been during twelve years employed as an assistant poor-law commissioner, that in that time he had travelled 99,607 miles viz. 69,000 by the old modes of conveyance, and 30,607 by railway—the cost of the old modes being 1s 6 3-4.d per mile, that by railway only 3 1-2d. Had he performed the whole distance by railway, the time occupied would have been *one year, thirty weeks, and six days*; had it been by the old conveyance, it would have been *four years, thirty nine weeks, and one day.* Here, then, as affects this individual, there would have been a saving out of twelve years of his life, had railway communication been used, of *three years and eight weeks*, and on the point of expenses of travelling a saving of £6,491. Goods from Manchester to Hull used to cost 45s. per ton for conveyance; now they cost only 24s. The time saved is a fortnight! The savings on the whole amount of goods usually passing between the two places is nearly £300,000. A number of facts equally striking have been lately announced, all tending to increase the public feeling in favor of railroad traffic.

Gen. Briggs lately said, in the East India House, "that he considered railway communication as likely to have a most beneficial effect in developing the resources of India. The crops of cotton would come much sooner and cheaper to market. The tobacco trade would flourish were railways established." Alluding to the famine which occurred in India some time ago, he said "that the want of proper roads prevented the conveyance of a sufficient supply of food to the sufferers, by which 500,000 human beings lost their lives."

Poison by Respiration.

Noxious particles are conveyed into the human system through the thin and delicate air vesticles of the lungs in the act of respiration. The mode in which the air vesticles are formed and disposed, is such as to give to the human lungs an almost incredible extent of absorbing surface, while at every point of this surface there is a vascular tube ready to receive any substance imbibed by it, and to carry it at once into the current of the circulation. Hence the instantaneous and the dreadful energy with which certain poisons act upon the system, when brought into contact with the pulmonary surface. A single inspiration of the concentrated prussic acid, for example, is capable of killing with the rapidity of a stroke of lightning. So rapidly does this poison effect the system, and so deadly is its nature, that more than one physiologist has lost his life by incautiously inhaling it while using it for the purpose of experiment. If the nose of an animal be slowly passed over a bottle containing this poison, and the animal happen to inspire during the moment of the passage, it drops down dead instantaneously, just as when the poison is applied, in the form of a liquid, to the tongue or the stomach.

A Live Talking Machine.

A man in the western part of this state called his neighbor into his house. not long since, to see a famous *talking machine* he had there. He said if the proper key were touched it would commence talking with the greatest volubility. The neighbors came, and the man introduced to them the famous machine, which proved to be—his wife.

Horse power in steam engines is calculated as the power which would raise 33,000 pounds a foot high in a minute, or 90 pounds at the rate of 4 miles an hour.

Southern Manufactories.

The Milledgeville (Geo.) Factory building is a substantial one of brick, four stories high, the whole looking like so many of the Northern models. It only cost about seven or eight thousand dollars. They have already some two thousand spindles at work, and when all the frames are up, there will be nearly three thousand five hundred spindles, besides eighty-five power looms, of the most improved description. The whole of this machinery is carried by a steam engine of moderate power, which, when doing full work, will consume about two and a quarter cords of wood in a day.

The Live Oak published at Pensacola, Florida, states that a cotton factory has been in operation at Arcadia, seventeen miles from that city, about a year. It is worked entirely by blacks, mostly girls, and turns out five thousand yards of domestics weekly.

The Occoquan Cotton Factory, in Prince William county, Virginia, has been purchased by Francis Hanna, of Occoquan, for $6,500. We understand it is his intention to put it in repair, and commence under auspicious circumstances. This was once a flourishing town, but the people wore out of the lands around it, and then took to their heels for the West and South-west, and the trade of the place fled with them.

A new Factory has lately been set in operation at Wheeling, Virginia, under the superintendence of our friend Mr. Hugh Bone—"a gentleman and scholar."

Isthmus of Panama Canal.

The *Journal of the Franklin Institute* for June contains copious extracts from Michael Chevalier's Examination of the Isthmus of Panama, translated from the French. It is shown that the distance across, from the Atlantic to the Pacific, is upwards of 70 miles—that from the Gulf of Papagaya, on the Pacific, to Lake Nicaragua, is 17 miles—that the lake is 131 feet above the Ocean, and the summit of the *intervening* ridge 143 feet above the lake—that several surveys terminate a canal from the gulf at a point near the town of Nicaragua, on the lake—that the port of San Juan of the South is well spoken of by scientific men, and believed to be a fit determination to the canal on the Atlantic side. The distance from Lake Nicaragua to the Atlantic, at San Juan, on the route the canal would go, is about 75 miles, an easier *though longer* route; there would be no deep cutting. Lake Leon is 26 feet higher than lake Nicaragua, and empties its waters into it. A canal using the waters of the former, would require about 30 locks between the two oceans.

The Trunk Boat.

The people of Philadelphia were surprised a few days since on seeing a man going down the river with the tide, seated upon a trunk. Upon enquiry it was ascertained that an individual has had manufactured a trunk which answers two purposes, a receptacle for clothing and a life preserver. The trunk consists of India rubber, and he is seated in the centre with with a large pole in his hand, with which the frail craft is steered. He arrived from Wilmington and the trunk was exhibited in Chesnut street, and his clothing, papers, &c. were found in perfect order, not the least damp or soiled. It is a valuable invention and may be the means of saving many lives and valuable property. We noticed the departure of this new boat from Wilmington. Its arrival at Philadelphia is a proof of its utility.

Philadelphia Luxury.

We notice in the Philadelphia North American an advertisement of a new invention, calculated for southern climes and for the warm season of our own section of country, entitled a "Fan Rocking Chair." It is described as a large fan attached to a rocking chair, by which a person, when seated, may with ease and pleasure enjoy all the comforts of being rocked, and at the same time fanned. It will be observed that this is the same invention mentioned some time ago, in the Scientific American.

The largest tree in the world is in Africa; several negro families reside inside the trunk of it.

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TO CORRESPONDENTS.

"W. J. of Conn."—The principle of propelling a steamboat by paddle wheels on a double crank, is not new We can direct you to where you can see a model more than three years old.

"R. Y. of Pa."—The exhaust opening of your engine is too small. Enlarge it one-fourth of an inch diameter and it will then work well.

S. L. D. of Pa."—Your favor next week, and must say that it is an able and eloquent production

"J. & J. W. of Mass."—A patent can be taken out for a new method of applying any composition. The composition and the application are two distinct things. $30 is the deposit fee for a patent. The whole would cost about $40. For a caveat the fee is $20. All fees must be paid in advance.

"T. H. H. of N. Y."—You can get all the necessary information regarding one horse power threshing machines from Mr. O. Badger, Fly Creek, Otsego co. N. Y. who manufactures excellent machines.

"W. H D. of Mass."—We will give you the desired information soon.

"B. B. of N. Y"—Friction rollers and balls are used for gudgeons in horizontal shafts, but for perpendicular shafts you are the only person to our knowledge that use them. They must be of great benefit. It would be of still greater advantage to lessen the number of balls. You can file a caveat and go on and make improvements.

"E. H. A. of Mass."—Your application of the iron tube (hollow shaft) is new. We know of no hindrance to your securing a patent for it. Its utility is self evident for neatness and durability.

"F. W. of Mass."—The only way in our opinion whereby a Rotary Engine can be made successful, is by applying it to advantage on the periphery of the wheel, as in the water wheel. This has already been done in a number of ways, but none as yet entirely successful. It is impossible to say any more upon the subject from your description. Descriptions of machinery should always be plain and minute, and very particular. A thing may appear very plain to the inventor's mind, and his description be very far from expressing his own ideas. This is evident in a great number of our correspondents' letters.

"W. N. of Illinois."—We shall give you the desired information by letter.

"J. H. Alabama."—We will send you the desired information as soon as we possibly can, by mail.

"J. W. of Mass."—The art of Bleaching is carried to a high state of perfection. Woolen goods are now bleached with nearly the same facility as those of cotton. The muriate of tin is used along with the chloride of lime.

"R. R. of N. Y."—In one instance we have heard of the successful packing of the steam chest by Goodyear's prepared gum-elastic (india rubber.)

"H. G. B. of Michigan."—The same principle of a washing machine has been invented before, and steam keers are used in all the Bleachworks for cloth. No mere revolution in suds will take out grease spots, they must be rubbed gently. We have never seen a washing machine which the good housewife dare trust to wash fine fabrics. You are the first with whom we are acquainted that has endeavored to use the steam keer for domestic purposes. That it is superior to a common wash kettle and wash machine, we are too well acquainted with its importance to doubt its utility for a moment, and wish to recommend, with your consent, its general use, only we must say that the principle is not new.

"W. T. of R. I."—A gothic house and an English cottage, are one and the same thing. There are different styles in Gothic architecture, the rounded or circular arch and the pointed. The English cottage is in the latter style. Ranlett's, and the American Architect, are excellent works on architecture, with beautiful plates—they are published in this city.—A number of articles, with engravings of cottages, are to be found in the back numbers of this volume of the Scientific American.

The power gained by an inclined plane is as the length to the height.

Officers of Mechanics Mutual Protections.

No. 5, A, Logan, S. P., A. Kipp, J. P.; S. Mead, R. S.; E. Jamison, F. S.; O. Gotham, T.

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The Annual Convention made very little alteration in any important point. Letters are all to be prepaid by persons sending them, The matter relative to the remittance of No. 5, relates to a case that occurred three years ago, before a grand Convention was in existence. The Grand United States Convention has done a great amount of business, some exceedingly strange as we are informed, but we shall be able to say more by and by. Andrew Hanna, of Utica, was re-elected G. S. F., C. H. Ries, G. R. S., and George Webb, G. T. The next Convention is to be held at Geneva. There has been a complete revision. James Huyler, D. G. P. is down at Bridgeport opening a new Protection. Just let the Protection get among the Yankees and they will make it go. There is the place for stern, firm, honest men. A charter will be here in a few days for a Protection in Jersey City. On Wednesday evening we held a good meeting there, and a great number went from this city.

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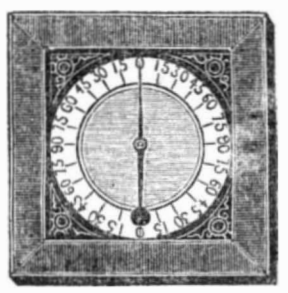

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Artificial Agate.

There are now made in Albany beautiful door knobs of common clay and some other mixtures. Mr. Pepper of Albany, we believe is the inventor, and it is not an imitation of agate merely, but is as real agate as that formed in Nature's own labaratory. From this, by a process of remelting and careful but expeditious moulding and baking, in ovens similar in appearance to those used in cracker bakeries, Mr. Pepper manufactures door knobs and other articles of household ornament of rare durability and beauty. These door knobs are of the highest polish and are blended with a variety of colors and are strong and beautiful.—Set in silver or bronze, the knobs are sold, at a rate which already commands the market.—It is perhaps not generally known that the common clay fused in a crucible runs like water, and makes a beautiful stone. The door knobs in the Albany Argillo Works are fused and then put into the annealing oven. After the knobs come out of this, they have no appearance of Agate until they are ground and polished, which is done by cast-iron *grindstones* on which a stream of wet sand continually flows. The method of grinding is not ingenious, all being done by hand. It is not possible to conceive to what perfection the manufacture of glass and earthenware may be brought, and to what purposes the article may yet be applied. The balance spring of a chronometer is now made of glass, as a substitute for steel, and possesses a greater degree of elasticity and a greater power of resisting the alternations of heat and cold. One of these chronometers with a glass balance-spring has been exposed to competition with nine other chronometers on a long voyage and the result was in favor of the glass spring one.

Test to Detect Arsenic.

Put two or three grains of arsenious acid (white arsenic) and eight ounces of distilled water, into a Florence flask; heat the mixture over a spirit lamp till the solution boils, and then add to it a grain or two of sub-carbonate of potash or soda. Pour a few table spoonsfull of the solution into a wine glass, and present to the mere surface of the liquid a stick of dry lunar caustic. A yellow precipitate will instantly appear, which will proceed from the point of contact of the lunar caustic with the fluid and settle towards the bottom of the glass as a flocculent and copious precipitant.

The above method of detecting arsenic is derived from Bertholet. It is known but to few that arsenic is used as a drug for dyeing. In combination with the sulphate of copper, precipitated by a caustic ley, it makes a most beautiful green, well known by the name of *sage green*, a name remembered with horror by many dyers who suffered from the direful effects of the poisons.

Experiments in Gun Cotton.

Mr. Horace Smith, in relation to several experiments lately made with gun cotton and powder, says that when used in the ordinary shot gun it was found to possess less power than the usual charge of powder, and that the power did not appear to be increased by an augmentation of cotton, which apparent singularity he explained by remarking that the whole charge did not explode, but that he noticed on every occasion a small portion leave with the shot. The superiority of cotton over powder, for rifles and fowling pieces were—first, its cleanliness, which all admitted was a decided advantage—second, its freedom from smoke, which enables the sportsman to take a second shot immediately upon the first fire—third, the recoil is much less. On this last point there was a difference of opinion, but the majority favored the gun cotton. The cotton used in the experiment was manufactured by C. & F. Lennig, who are the patentees for the United States. In the rifles from three to six grains were used, and the latter quantity drove the bullets, thirty to the pound, through the target at a distance of ninety-five yards, while the three grain load reached on some of the trials, but fell short on others.

THE ART OF PAINTING.

(*Continued from No* 45.)

LANDSCAPE PAINTING ON WALLS OF ROOMS.

The engraving in our last number represented a cultivated farm, with a variety of fields of different tints, and supposed to be occupied by different kinds of vegetation in progress; and we may now proceed to give some instruction on the subject of coloring the various fields, &c.

There are various kinds and colors of earth, the imitation of which require different compounds of colors; but the most common ploughed fields, by a mixture of stone brown, (yellow ochre, venitian red, and black,) and sky-blue. The proportions of these may vary according to the distance, and an additional quantity of yellow ochre, red or white may be occasionally added, according to the fancy of the artist, or the soil of the country in which the work is applied In most of the state of New Jersey the earth has a deep reddish tint, while in a large section of Maine, the earth abounds with white clay, and is consequently very light colored The path-way of roads should be painted much lighter than ploughed lands, and sometimes nearly white, but slightly tinted and occasionally shaded with yellow ochre and stone-brown. Fields of growing oats are painted with a mixture of French green and white. Fields of barley or rye, nearly ripe, are painted with a mixture of two parts of white to one of yellow ochre. Fields of buckwheat in blossom, are represented by applying white with a bushing-brush, to a green ground. Fields of red clover require the application of rose-pink by the same process. Low lands, in which the butter-cup flower abounds, is imitated by a similar application of bright chrome yellow. There can be no scenery found in the world which presents a more gay and lively appearance in painting than an American farm, on a swell of land, and with various colored fields well arranged, and especially when the fruit trees are in blossom. A degree of consistency must be observed in painting, however, that objects belonging to different seasons may not appear in the same scene; but different seasons may, with full propriety, be represented on different parts of the same room. For instance, in one part may appear an orchard of various trees in blossom; in another part, fields of ripe grain, and trees loaded with fruit; and in another, a forest in the gay autumnal tints, of vermillion, orange and olive colors interspersed. The shores of ponds, bays and rivers are usually painted with stone-brown reduced with sky-blue according to the distance; but bright sandy beaches are often introduced with good effect, and are painted with white, slightly tinged with yellow ochre and venitian red. Small islands of beautiful appearance are sometimes represented by a convenient and simple process, and without any preparation of ground work. For this purpose, a piece of clap-board, or other similar piece of wood, about 20 inches long, and three inches wide, planed thin and straight at one end, is provided and used This safe-edge (which is also found very convenient for various other purposes in painting) is placed horizontally against the wall, with the thin edge upward, and on the line intended for the shore of the island. A bushing-brush charged with the tree-green green color is applied to produce the semblance of tree-tops and bushes extending upward from the safe-edge, and extending horizontally according to the design; the position of the safe-edge being varied so that the two terminations of the island may be a little elevated, as shown in the engraving. A small streak of yellow green may then be drawn horizontally across the bushing, which will represent an open space, on which one or more cottages may be based.—The stocks and branches of the trees, and the shore at the water's edge may be drawn with a camel-hair pencil, and the water being shaded below, the island will appear romantic and complete.

(*To be continued*)

RECIPES.

Carmine.

Carmine is a triple compound of coloring substance, and an animal matter contained in cochineal, combined with an acid, used for the purpose of precipitation. Few persons are engaged in the manufacture of this article, for its consumption is very limited. The raw material is to be obtained at a high price only. It is important, in order to obtain success in this business, to know the instant for refraining from further heating the materials. The difference in the quality of the various kinds of carmine sold, depends either upon the proportion in which the alumina is added in the precipitation, or upon a certain quantity of vermillion used for diluting the color. In the first case it bears a paler shade, in the second, it has not the same lustre. The mode of discovering the proportion of the adulteration is simple—pure carmine has the property of dissolving in solution of ammonia: if we avail ourselves of this as a test, we will find that the adulterous ingredients will remain untouched, and by drying the residuum we may easily calculate the amount.

TO MAKE CARMINE.

Take the following articles in the following proportions:—1 lb. of powdered cochineal, 3½ drms. of carbonate of potash, 1 oz. of powdered alum; boil the cochineal along with the potash in a copper vessel containing 60 pints of water; allaying the ebullition with cold water. The copper must be taken from the fire when its contents have been boiling a few minutes, and placed on a table in a position such as to admit of the liquor being easily passed into another vessel; now throw in the pounded alum and stir well. The decoction changes color immediately, and assumes a brighter tint. The cochineal will, at the expiration of about fifteen minutes, be deposited at the bottom, and the liquid will become as clear as though it had been filtered. Then transplace it into another copper vessel of similar dimensions, and placing it over the fire, add 3½ drms. of fish glue, dissolved in some quantity of water and passed through a filter; the moment it boils the carmine rises to the surface, and a result follows similar to that which takes places in clarifications with white of egg; remove the copper from the fire immediately, and stir its contents with a spatula, the carmine will, in about fifteen minutes, be found settled at the bottom; remove the supernatent liquor, and drain the deposit upon linen or fine canvas. Provided the above directions are carefully attended to, and the operation skilfully conducted, the carmine, when dry, will crumble at the pressure of the fingers.

Valuable Recipe.

Mr. James B. Ayres, has communicated to the public, through the Christian Advocate and Journal, a recipe for curing the discharge of blood from the lungs.—It is as follows:—take sixty grains of sugar of lead, ten grains of white vitriol, half an ounce of gum Arabic, half an ounce of laudanum, and five ounces of water; put them into a bottle, and shake it before taken. One or two teaspoonfulls every two hours or oftener, may be taken, according to the bleeding.

In cases of emergency common salt brine should be immediately taken, or a small quantity of epsom salts.

Remedy for Fever and Ague.

Take one ounce of yellow Peruvian bark, a quarter of an ounce of cream tartar, one table spoonful of powdered cloves, and one pint of Teneriffe wine, mix them together and shake it well. Take a wine-glassful every two hours after the fever is off.

Before taking the above, a dose of Epsom salts, or other medicine, should be administered, to cleanse the stomach, and render the cure more speedy and certain. The above is an excellent remedy.

Bells.

The nearer bells are hung to the surface of the earth, other things being equal, the further they can be heard. Franklin has remarked that many years ago, the inhabitants of Philadelphia had a bell imported from England. In order to judge of the sound it was elevated on a triangle, in the great street of the city, and struck, as it happened, on a market-day; when the people coming to market were surprised on hearing the sound of a bell at greater distance from the city than they had ever heard any bell before. This circumstance excited the attention of the curious; and it was discovered that the sound of the bell when struck in the street, reached nearly double the distance it did when raised in the air.

A Mechanical Miracle. almost, has just been performed at Providence R. I. An immense mill, five stories high, and 250 feet long by 100 wide, owned by Fletcher & Brothers, having been badly built, declined so much from the purpendicular as to become almost a second tower of Pisa. It was also stove in at the sides. All feared that it would fall. But see what mechanical genius can perform! By the application of screws and wedges, the building, in less than nine hours was restored to its original condition, without a brick being started. A Mr. Carpenter has the credit of this bold and successful act

Precious Stones.

The precious stones are of various colors and transparent. The Diamond is white; Ruby and Garnet, different shades of Red; Amethyst is violet; Sapphire and Turquoise, different shades of blue. Emerald, Betyl, and Aquamarine, are different shades of green. The Topaz is yellow. The stones that are not deemed precious, are the Opal, Cornelian, Onyx, Sardonyx, Agate, and Jasper. These will all take a fine polish: they are of various colors and are used by Jewellers for ornaments.

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